

REMARKS/ARGUMENTS

Reconsideration of this application is requested. Claims 1-9 and 11-16 will be pending in the application subsequent to entry of this Amendment.

The claims have been amended in order to more particularly point out and distinctly claim that which applicants regard as their invention and to address the issues/rejections noted in items 1-5 of the Official Action. Claims 1 and 2 have been amended to clarify antecedent basis for the reinforcing member; the examiner's interpretation is correct in item 5 of the Official Action, a single reinforcing member was intended. Claims 1 and 2 also adopt the examiner's suggested correction in items 2 and 3 of the Official Action.

Claims 5-9 and 11-16 have been amended as appropriate to correct multiple dependencies.

In preparing this response a typing error was noted in claim 13. The correct term is "organic phosphinic acid" and basis for this will be apparent from a description of the invention, for instance at page 20, line 8 as well as various working examples such as Examples 13-20, 34, 35, 41, 42 and 44-46. The amendment to claim 13 does not introduce new matter as will be apparent from the passages just mentioned.

Independent claims 1 and 2 have been amended to include the subject matter of original claim 10 specifying that the heat-resistant material contains 0.1 to 10 wt.% of an organic phosphorous compound and 90 to 99.9 wt.% of expanded graphite. This amendment to the claims renders them completely consistent with the working examples of this application, that is Examples 1-46 as set out in the description of the invention and the results of which are summarized in Tables 1-12 over pages 74-85 of the description. Claim 10 is deleted as redundant.

The present application also includes comparative examples that are not according to the present invention and do not have the requisite amounts of expanded graphite and/or phosphorous compounds. The results of the comparative examples are given in Table 13 on page 86 of the description and also included is a synopsis of the results of these comparisons. From their studies applicants have concluded that weight reduction of the seal, a measure of oxidative wear of expanded graphite, was not more than 13% even under high temperature conditions exceeding 700°C. In addition, spherical annular seal members according to the

present invention exhibit excellent resistance to oxidation as compared to the products of comparative examples 1-3. The examiner will note that the amount of gas leakage is significant in the comparative examples and at least one order of magnitude less in the examples according to the present invention. In addition to this, applicants have found that the heat-resistant sheet member composed of the organic phosphorous compound and expanded graphite has flexibility similar to that of an ordinary expanded graphite sheet. This makes it possible to effect the bending process and makes the method of manufacturing a spherical annular seal member relatively trouble-free.

The evidence of unexpected results as shown by the data provided in Table 13 of the originally filed specification provide sufficient basis for demonstration of a surprising effect provided by the expanded graphite and phosphorous combination. The results presented in the original specification accompanied by the executed declaration signed by the inventors would have significant evidentiary weight, comparable to the weight given to an executed declaration. It is well established by the Federal Circuit that "the examiner must consider comparative data presented in the specification which is intended to illustrate the claimed invention in reaching a conclusion in regard to the obviousness of claims." *In re Margolis*, 785 F.2d 1029, 228 U.S.P.Q. 1123, 1129 (Fed. Cir. 1993).

The current Official Action makes no mention of the comparative examples and other data contained in the application as filed. The amendments made to claims 1 and 2 bring this data clearly into focus and serve to further distinguish the claims from the applied prior art.

Claims 1-4 (only) were examined on the merits and stand rejected based upon a combination of two references. At the outset applicants disagree with the examiner's combination of these two documents as they are not reasonably related to each other. Instead, they appear to be more the result of a "word search"-based analysis and not one driven by the content and scope of the prior art.

The U.S. Court of Appeals for the Federal Circuit has stated that "[t]he mere fact that the prior art may be modified in the manner suggested by the examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." *In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992) (citing *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984)).

The mere fact that teachings found in the prior art could be combined as proposed by an examiner does not make the combination obvious "absent some teaching, suggestion or incentive supporting the combination." *Carella*, 804 F.2d at 140, 231 USPQ at 647 (citing *ACS Hosp. Sys., Inc.*, 732 F.2d at 1577, 221 USPQ at 933).

From the above it will be apparent that the combination of references is improper and the rejection should be withdrawn.

For completeness of the response however the combination of documents as applied in the Official Action will be considered and directly responded to.

The spherical annular seal members according to the amended claims 1 and 2, comprises a heat-resistant material containing 0.1 to 10.0 wt.% of the organic phosphorus compound and 90.0 to 99.9 wt.% of the expanded graphite, so that the oxidative wear of expanded graphite constituting the principal ingredient of the heat-resistant material in the inventive seal member is reduced even in a high-temperature range exceeding 700°C by virtue of the oxidation suppressing action of organic phosphorus compound. The result is that the heat resistance of the inventive seal member improves, and that, in the inventive seal member, a smooth sliding movement is effected particularly in the initial sliding movement with respect to the mating member, and the generation of abnormal noise in sliding friction which occasionally occurs in the initial period of sliding can be prevented.

Applicants acknowledge Maeda et al (US Patent No. 5,499,825) discloses, indeed, a spherical seal member which is used particularly in an exhaust pipe spherical joint.

By contrast, the secondary reference to Hutchings et al (US Patent No. 6,102,995) - which has nothing to do with spherical seal members or the oxidative wear of seal members - discloses an intumescent composition, that is a composition that swells and chars when exposed to flame, useful for imparting fire resistance to a variety of substrates, particularly for materials used in building and construction industry. Hutchings et al also discloses this composition has particular use as a composition for coating a variety of substrates for imparting fire resistant characteristics (such as intumescence) in column 13, lines 47-53 the passage indicated by the examiner.

However, even when Maeda et al and Hutchings et al are considered together the combination fails to suggest much less explicitly disclose the heat-resistant material containing 0.1 to 10.0 wt.% of the organic phosphorus compound and 90.0 to 99.9 wt.% of the expanded graphite.

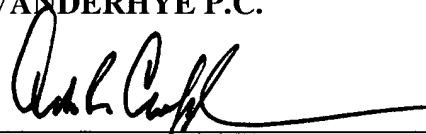
Therefore, the spherical annular seal members defined by the amended claims 1 and 2 is novel and is unobvious in view of Maeda et al and/or Hutchings et al as are the claims dependent from them.

For the above reasons it is respectfully submitted that the claims of this application define inventive subject matter and that the prior art-based rejection should be withdrawn. Should the examiner require further information, please contact the undersigned.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: _____



Arthur R. Crawford
Reg. No. 25,327

ARC:eaw
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100